II. AMENDMENTS TO THE CLAIMS

1-26. (cancelled)

27. (currently amended) A method of collecting oocytes for *in vitro* fertilization comprising**:**

(a) administering ~~**the administration of**~~ a non-polypeptide cAMP level modulator **to a female, whereby ovulation is induced; and**

(b) collecting oocytes from said female.

28. (new) The method of claim 27 wherein said cAMP level modulator is a phosphodiesterase inhibitor.

29. (new) The method of claim 28 wherein said phosphodiesterase inhibitor is an inhibitor of a phosphodiesterase 4 isoform.

30. (new) The method claim 27 wherein said non-polypeptide cAMP level modulator is administered to said female prior to the luteal phase of the ovulatory cycle.

31. (new) The method of claim 30 wherein said non-polypeptide cAMP level modulator is a phosphodiesterase inhibitor.

32. (new) The method of claim 31 wherein said phosphodiesterase inhibitor is an inhibitor of a phosphodiesterase 4 isoform.

33. (new) The method of claim 30 further comprising administering to said female an agent which increases follicle stimulating hormone concentrations in said female during the follicular phase of the ovulatory cycle.

34. (new) The method of claim 33 wherein said agent is follicle stimulating hormone.

35. (new) The method of claim 33 wherein said agent is clomiphene.

36. (new) The method of claim 33 wherein said agent is a selective estrogen receptor modulator.

37. (new) The method of claim 33 wherein said agent is an aromatase inhibitor.

38. (new) The method of claim 33 wherein said agent is an inhibitor of related steroidogenic enzymes which decreases total estrogen production.

39. (new) The method of claim 33 wherein said non-polypeptide cAMP level modulator is a phosphodiesterase inhibitor.

40. (new) The method of claim 39 wherein said phosphodiesterase inhibitor is an inhibitor of a phosphodiesterase 4 isoform.

41. (new) The method of claim 30 further comprising administering lutenizing hormone to said female prior to the luteal phase of the ovulatory cycle.

42. (new) The method of claim 41 wherein said non-polypeptide cAMP level modulator is a phosphodiesterase inhibitor.

43. (new) The method of claim 42 wherein said phosphodiesterase inhibitor is an inhibitor of a phosphodiesterase 4 isoform.

44. (new) The method of claim 41 wherein lutenizing hormone is administered simultaneously with said non-polypeptide cAMP level modulator.

45. (new) The method of claim 41 wherein lutenizing hormone is administered sequentially with said non-polypeptide cAMP level modulator.

46. (new) The method of claim 30 further comprising administering chorionic gonadatropin to said female prior to the luteal phase of the ovulatory cycle.

47. (new) The method of claim 46 wherein said non-polypeptide cAMP level modulator is a phosphodiesterase inhibitor.

48. (new) The method of claim 47 wherein said phosphodiesterase inhibitor is an inhibitor of a phosphodiesterase 4 isoform.

49. (new) The method of claim 46 wherein chorionic gonadatropin is administered simultaneously with said non-polypeptide cAMP level modulator.

50. (new) The method of claim 46 wherein chorionic gonadatropin is administered sequentially with said non-polypeptide cAMP level modulator.

51. (new) The method of any one of claims 27-50 wherein said administration is selected from the group consisting of oral, parental, rectal, transmucosal and transdermal.

52. (new) The method of claim 51, wherein said female is selected from the group consisting of human, horse, cow and sheep.